



# ***Report on a Multi-GNSS Demonstration project in the Asia/Oceania region***

- Asia Oceania is the “Showcase of New  
GNSS Era” -

Japan Aerospace Exploration Agency

ICG 5<sup>th</sup> Providers Forum @Vienna, Austria  
June 8, 2010

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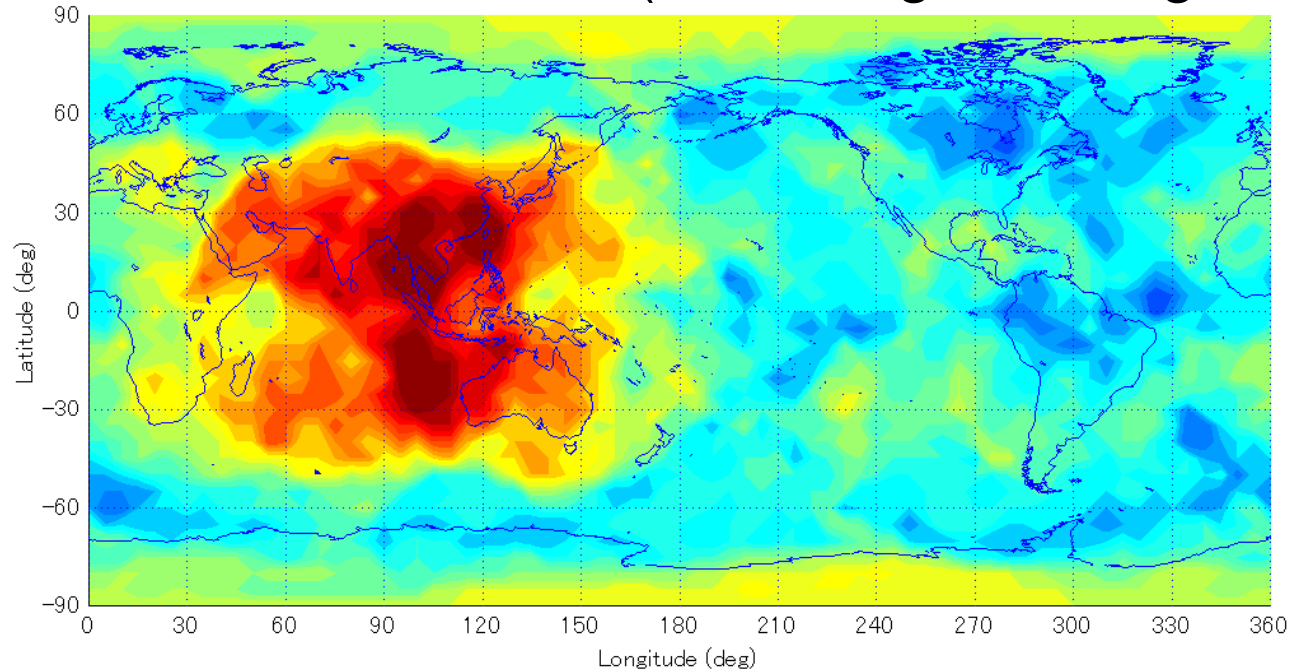
- Back Ground
- Multi-GNSS demonstration campaign
- Progress after the previous ICG at St. Petersburg
- Next Steps



# Background

## Showcase of New GNSS Era

Visible satellite number (mask angle 30 degrees)



**2020:**

GPS(27)+Glonass(24)+Galileo(30)+COMPASS(35)+IRNSS(7)+QZSS(3)+SBAS(7)



# Background

## Showcase of New GNSS Era

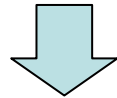
- **In Asia Oceania region, we can utilize**
  - Four major global systems
    - GPS (24 SVs in nominal constellation, currently 32 SVs)
    - GLONASS (24 SVs)
    - Galileo (27 + spare 3 = 30 SVs)
    - Future COMPASS (35 SVs)
  - Plus two regional satellite PNT systems and SBAS
    - QZSS (3 SVs)
    - IRNSS (7 SVs)
    - MSAS, GAGAN (2 SVs, respectively)
- **New modernized GNSS signals, multi-frequency and multi-GNSS signals can be utilized earlier rather than other region in the world**



# Background

## Showcase of New GNSS Era

- User benefits from Multi GNSS
  - Increase in usable SVs, signals and frequencies



- Increase in availability and coverage
- More robust and reliable services
- Higher accuracy in bad conditions
- Less expensive high-end services



Emerging new and expanding existing applications are to be expected.

# Multi-GNSS Demonstration Campaign

## Objectives

- Encourage and promote the introduction and utilization of satellite PNT services in the Asia and Oceania region through assistance with the integration of GNSS services into their infrastructures;
- Promote new multi-GNSS utilization and applications in the region and **feedback needs and requirements related to interoperability from user communities to GNSS providers**
- Encourage GNSS provider and users in Asia Oceania region to **develop new applications and carry out experiment or demonstration jointly.**



# Multi-GNSS Demonstration Campaign

## *Asia Oceania Multi-GNSS Demonstration Campaign*

- *is a series of activities for five years from 2010*
- *comprises the following parts*

### *1. Multi-GNSS Monitoring Network*

- *CORS (Continuously Operating Reference System), Data center, Analysis Center*
- *Sharing resources and observed data among participated organization*

### *2. Applications Development & Demonstration*

- *Development of multi GNSS applications*
- *Carrying out Experiments and Demonstrations*

### *3. Regional Work Shop*

- *Annual base Workshop in Asia Oceania region*
- *Announcement of joint experiment plans and reporting results of the experiments*



# Progress after the previous ICG

- *The concept of “Multi-GNSS demo. Campaign” was presented at ICG-4 and obtained endorsements from Two WGs (WG-A and D)*
- *The first regional Workshop was held at Bangkok, Thailand on January 25-26, 2010 successfully.*
  - *195 participants from 18 countries*
  - *4 discussion groups were established for future joint experiments*
    1. *Multi-GNSS observation network*
    2. *Disaster Mitigation and Management*
    3. *Precise Positioning*
    4. *ITS*
- *JAXA has just started a procurement for multi-GNSS receivers for the multi-GNSS observation network.*





# Next Steps

- *Collaborations with relevant groups*
  - *Participation in their meetings and discussion how to collaborate with them*
    - *International GNSS Services*
    - *APEC GNSS Implementation Team*
- *Establishment an organization to manage the proposed campaign activity*
  - *is expected by the 2<sup>nd</sup> workshop*
- *Second regional workshop*
  - *Currently plans to be held around the end of November.*

